

MtBE Remediation Bureau Case Study

Impacted Residential Water Supply in Milan



Overview

In 2011, in a rural area of Milan, the homeowner at 224 Milan Hill Road discovered that their water smelled like petroleum. A sample was collected from their supply well and two petroleum-related compounds, benzene and MtBE, were detected above Ambient Groundwater Quality Standards. Using funding from the Petroleum Remediation Fund Program, NHDES assisted with the installation of a treatment system to provide the residence with potable water. However, the source of the petroleum impact to the well was not known and the project was referred to the MtBE Remediation Bureau.

History

Based on Town records, the 224 Milan Hill Road property has been a residential home since its development in 1897; however, the property across the street at 239 Milan Hill Road was historically a bus maintenance garage. This property is currently occupied by Foreast Transportation, Inc. (Foreast), which is a school bus contracting company using the property for bus storage and maintenance. Following interviews with local residents and a review of NHDES records, it was determined that an underground storage tank (UST) system was formerly located on the Foreast property. The owner of Foreast stated that before purchasing the property in 2000 they were assured in writing that there were no USTs on the property and were not aware of any sources of petroleum contamination. They also had liability concerns and were reluctant to proceed with environmental sampling.

MtBE Bureau Investigation and Remediation Actions

MtBE Remediation Bureau staff met with the owner of Foreast and explained that there was funding assistance to investigate potential sources of MtBE impact to NH's groundwater. In addition to funding an investigation, if the source of MtBE impact was identified on the property, there would also be assistance to remediate the contamination. After easing some of the financial concerns with the understanding that NHDES would be able to fund the investigation, the owner agreed to allow access to their property.

The initial phase of investigation consisted of a site area reconnaissance and records review followed by a geophysical survey and test pit excavation program to determine if the USTs were still in place or had been removed. NHDES records indicated that the tanks had been removed in 1991; however, the removal was conducted by the previous property owner and there was no assessment provided as to whether the USTs had leaked. However, a clue was provided in

AT A GLANCE

Site Location:

239 Milan Hill Rd, Milan

Bureau Actions:

Source Investigation and Impacted Soil Removal

MtBE Fund Reimbursements: \$400,805

Outcomes:

- Identified the source of impact to residential water supply.
- 3,000 tons of petroleum contaminated soil removed and properly disposed of.
- Treatment system maintained at the contaminated water supply and investigation into other potential water sources conducted.

the closure documents that stated one of the two USTs had been taken out of service the year prior due to “failure,” a tacit indication that a leak may have occurred. The geophysical survey and test pit investigation confirmed that the USTs had been removed and soil samples confirmed the historical petroleum release with elevated field screening results and petroleum related compounds above Soil Remediation Standards in samples collected just above the bedrock surface. Bedrock was encountered at relatively shallow depths ranging from 1 to 12.5 feet below the ground surface (see photos below).

Following the discovery of petroleum impacted soil, NHDES and the property owner agreed to proceed with a source area soil boring delineation program followed by excavation of the impacted soil. The MtBE Remediation Bureau engaged one of the Initial Response Contractors to conduct the excavation. Soon after breaking ground, it became apparent that the volume of impacted soil was larger than originally estimated from the soil boring delineation program due to the undulating bedrock surface and areas of deeper bedrock missed by the soil borings. Ultimately, the excavation occupied an area of approximately 11,250 square feet and extended from the maintenance building across the property and beneath Milan Rd. The project lasted 33 days and resulted in the removal of approximately 3,000 tons of petroleum impacted soil.



These photos show the contaminated soil being excavated.
Note: *In the picture to the right, you can see that the excavation extended to the uneven bedrock surface.*



Current Status, 2019:

Following completion of the source area cleanup effort, the bedrock monitoring wells were installed on the Foreast property to assess the on-site groundwater quality and provide monitoring points for continued sampling. NHDES also authorized comprehensive private water well sampling in the vicinity of the impacted property to identify any other potentially impacted private water wells. The results of the area sampling did not find other impacted supply wells beyond the 224 Milan Hill Road property well. NHDES is providing assistance to the off-site property owner with the impacted supply well by supplying a point-of-entry treatment system to remove the contaminants while we evaluate other potential drinking water sources, since it will take some time for the bedrock groundwater quality to improve after this initial remediation work. Following extensive geo-physical evaluations of the impacted supply well at 224 Milan Hill Road and a neighboring property which did not have an impacted supply well, it was determined that an alternative clean and reliable bedrock water supply well would be difficult to source.